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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|----------------------|--------------------|
| 10/666,236 | 09/19/2003 | Ammar Derraas | 100718.422 MIC-80 DV | 8484 |
| 23483 | 7590 | 10/05/2004 | EXAMINER | |
| WILMER CUTLER PICKERING HALE AND DORR LLP 60 STATE STREET BOSTON, MA 02109 | | | | LEURIG, SHARLENE L |
| | | ART UNIT | | PAPER NUMBER |
| | | | | 2879 |

DATE MAILED: 10/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | |
|------------------------------|-----------------|---------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 10/666,236 | DERRAA, AMMAR |
| Examiner | Art Unit | |
| Sharlene Leurig | 2879 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 23 July 2004.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-8 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
 Paper No(s)/Mail Date 041204.
- 4) Interview Summary (PTO-413)
 Paper No(s)/Mail Date. _____
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 2, 4, 5 and 8 stand rejected under 35 U.S.C. 102(b) as being anticipated by Levine et al. (5,589,728) (of record).

Regarding claim 1, Levine discloses a column line structure for use in a cathode assembly of a field emission device, comprising a conductive structure (Figure 6, element 18), a resistive layer (15) formed on the conductive structure, and an insulative layer (125) formed partly over the resistive layer.

Regarding claim 2, the conductive structure (18) comprises metal (column 6, lines 44-46).

Regarding claim 4, the resistive layer comprises silicon (column 6, lines 54-56).

Regarding claim 5, the insulative layer comprises silicon oxide (column 6, lines 58-59).

Regarding claim 8, Levine discloses a field emission device comprising a cathode assembly (Figure 6, element 110) and an anode assembly (11) assembled with the cathode assembly, wherein the cathode assembly includes an addressing matrix comprising multiple row lines and columns lines (Figure 5; column 4, lines 45 and 55),

the column lines (18) having an insulation layer (125) thereon to inhibit shorting with the row lines (22).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 3 and 6 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Levine et al. (5,589,728) (of record) in view of Garcia (5,521,461) (of record).

Regarding claim 3, Levine discloses a field emission device having a column line structure comprising a conductive structure (Figure 6, element 18) formed of a metal, such as niobium (column 6, lines 44-46).

Levine fails to exemplify a conductive structure formed of aluminum.

Garcia teaches a field emission device having a column line comprising a conductive structure (Figure 1, element 4) comprising aluminum (column 3, lines 16-17).

Therefore regarding claim 3, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the FED of Levine to have a conductive structure made of aluminum, as taught by Garcia, in order to provide a conductive line with a highly conductive material that is readily available.

Regarding claim 6, Levine discloses a field emission device having a column line structure comprising an insulative layer (Figure 6, element 125) formed of silicon oxide (column 6, lines 58-59).

Levine fails to exemplify silicon nitride as a material for the insulative layer.

Garcia teaches an insulating layer for an FED being made of either silicon oxide or silicon nitride (column 3, lines 46-47), and therefore teaches that the two materials are interchangeable.

Therefore regarding claim 6, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the FED of Levine to have an insulative layer made of silicon nitride, as Garcia has taught silicon nitride to be interchangeable with silicon oxide.

5. Claim 7 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Levine et al. (5,589,728) (of record).

Levine discloses an FED having a column line structure comprising a strip of insulative layer of 1.0 micron in thickness (column 6, lines 59-60).

Levine fails to exemplify the insulative layer comprising a thickness of 1000 Angstroms.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide an insulative layer of 1000 Angstroms in thickness, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the FED of Levine to have an insulative layer of a lesser thickness such as 1000 Angstroms in order to provide a thinner, lighter weight device, as it has been held to be within the ordinary skill in the art to modify such a variable.

Response to Arguments

6. Applicant's arguments filed July 23, 2004 have been fully considered but they are not persuasive. The applicant has argued that the Levine reference fails to disclose a column line structure comprising the claimed structure. Specifically, the applicant has argued that Levine fails to disclose an insulative layer partly covering the resistive layer. Examiner directs applicant to Figure 6 of Levine, which clearly illustrates an insulative layer (125) partly covering resistive layer (15). As to the applicant's arguments that Levine fails to disclose a column line structure, examiner directs applicant to the description of conductive layer (18) as part of a column line structure (column 4, line 45).

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

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mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sharlene Leurig whose telephone number is (571) 272-2455. The examiner can normally be reached on Monday through Friday, 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on (571) 272-2457. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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